FR 7/37

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29th, November 1961

Reference : P23I HAK/AQ

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MATL. ENGR	PROCESS SUPT. ✓
CH. TL. DSGR	TOOL. PROD. SUPT.
CH. INSP. E. F.	TOOL. ROOM. SUPT.
A/F MANAGER	SUPT. INSPECTION

ATTENTION : THE MANAGER

SUBJECT : SULPHUR IMPREGNATED GRINDING WHEELS

Dear Sir,

At Mr. BELLWARD's request, the subject of the use of sulphur impregnated grinding wheels for grinding the aerofoil surfaces of turbine blades in nimonic series alloys, in relation to subsequent corrosion, was referred for comment to Mr. BRUNETAUD - Manager of Materials section.

His comments were :-

- The presence of sulphur at elevated temperatures was very undesirable for any nickel based alloy. Corrosion troubles had been experienced with turbine blades during service, however the cause had been attributed to sulphur from the fuel rather than from sulphur contamination during any stage of machining or processing.

- It is true that the aerofoil section of nimonic alloy turbine blades are ground with sulphur impregnated grinding wheels, but these surfaces are subsequently surface ground with a belt grinder and later treated by acid cleaning. These operations were considered to be adequate to remove any sulphur contamination that may be present.

In connection with the above remarks SNECMA do not carry out any high temperature skin annealing of turbine blades. The subject of surface work hardening is approached more from the machining aspects rather than correction by heat treatment. High temperature skin annealing was

considered undesirable as there was a tendancy for grain coarsening and reduction of creep properties of the core material. It is also of interest to note that there is no electropolishing carried out on nimonic alloy turbine blades.

The subject of turbine blade manufacture at SNECMA is being discussed in detail and it will be the subject of later reports.

Yours faithfully,

C. BELLWARD